

REMARKS

Applicant respectfully requests further examination and reconsideration in view of the arguments set forth fully below. Claims 1-4, 14, 16, 17, 143 and 144 were previously pending in the instant application. Within the Office Action, claims 1-4, 14, 16, 17, 143 and 144 have been rejected. Claims 5-13, 15, 18-53, and 132-142 are withdrawn. Claims 54-131 are cancelled by the amendment above. Claims 1-4, 14, 16, 17, 143 and 144 remain pending in this application.

Fundamentals of the Technology

The preferred embodiment of the present invention relies in part on a piezo transducer. As is known, such transducers can be excited by traveling waves or by standing waves. When excited by traveling wave, all portions of the transducer will experience moments of expansion and contraction. In contrast, when a transducer is excited in resonance the transducer will experience a standing wave. When a standing wave is present, portions of the transducer will expand and contract while other portions of the transducer will experience substantially no change in dimension. In the specification and hereinafter, the regions that experience substantially no change in the direction illustrated as the vertical axis of FIG. 2B are referred to as "anti-nodal regions."

When a transducer is not operating in resonance, it cannot have nodal or anti-nodal regions, as the waves propagate through the transducer and all portions of the transducer will substantially change dimensions. Moreover, operating a piezo device that directly and constantly contacts a second element in non-resonant conditions cannot achieve the method of the present invention, in part because the lack of constant anti-nodal regions precludes the possibility inducing a motion only in a direction parallel to the interface between the first and second surfaces, as described in the claims. However, operating the device in resonance provides anti-nodal regions. Since the thickness dimension remains substantially unchanged and movement in these regions is confined to be parallel to the contact surface of FIG. 2, a surface of the device that only contacts points corresponding to anti-nodes will substantially not undergo any movement perpendicular to the contact surface and thus satisfy the claims.

No prior art reference considers, teaches, hints, suggests, or takes advantage of transducers operating in resonance wherein contact is made substantially only in regions where there is substantially no vertical motion imparted by the transducer to the load. No reference teaches, hints, suggests, or takes advantage of making contact in only anti-nodal regions.

Rejection Under 35 USC 112

Within the Office Action, claim 144 was rejected under 35 U.S.C. 112 as being indefinite. The Office Action states that the claim is either inaccurate or based on an inadequate

disclosure based on the Applicant's remarks made in response to the Office Action mailed August 22, 2003. The contact pads on the transducer which are located at the anti-nodal regions protrude at least a thickness from the surface of the transducer that prevents the nodal region of the transducer from contacting the second surface. Thus, the claim is clear, accurate and unambiguous. Nevertheless, in view of the amendment to claim 144 above the rejection is now moot.

Rejection Under 35 USC 102(a)

Within the Office Action, claims 1-4 and 143 have been rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 4,736,129 to Endo, et al. (hereafter "Endo"), U.S. Patent No. 5,043,621 to Culp (hereafter "Culp"), U.S. Patent No. 5,432,120 to Assard, et al. (hereafter "Assard"), U.S. Patent No. 4,884,002 to Eusemann, et al. (hereafter "Eusemann") or U.S. Patent No. 5,345,137 to Funakubo, et al. (hereafter "Funakubo"). Each of the references is directed toward a device for inducing motion, eg., a motor. The present invention is not for a motor and the claimed invention cannot be used to induce motion. For at least this reason, the invention as claimed is allowable.

Further, the Office Action states that no "pads", nodes or anti-nodes are claimed and that resonance is not an element of the claims. The applicants assert that those elements are either explicitly found in the claims or are inherent in the claim limitations. Nevertheless, to move the case forward, the applicant amended claim 1 to include the limitation that the contact pads are located at the anti-nodal regions, and that the induced motion is in resonance. Likewise, Claim 2 and claim 144 includes similar amendments. Claim 143 was amended to add that the induced motion is in resonance and already included the 'anti-nodal' limitation. Accordingly the four independent claims are now in a condition for allowance.

Rejection Under 35 USC 103(a)

It is stated within the Office Action that claim 14, 16 and 17 is rejected under 35 U.S.C. 103(a) as being anticipated by Culp, Endo or Assard in view of Kamigaito et al. Claims 14, 16 and 17 are dependent on an allowable independent claim 2. As described above the independent claim 2 is allowable over the teachings of Culp, Endo and Assard. Accordingly, claims 14, 16 and 17 are also allowable as being dependent on an allowable base claim.

Serial No.: 09/723,615

Attorney Docket No.: PATENT
GRQ-00100

The Applicants respectfully submit that the claims are now in a condition for allowance in light of the above arguments, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, she is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 11-22-04

By: Thomas B. Haverstock

Thomas B. Haverstock

Reg. No.: 32,571

Attorneys for Applicants

CERTIFICATE OF MAILING (37 CFR § 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

HAVERSTOCK & OWENS LLP.

Date: 11-22-04 By: Thomas B. Haverstock